

Aug. 8, 1933.

R. P. SWORD

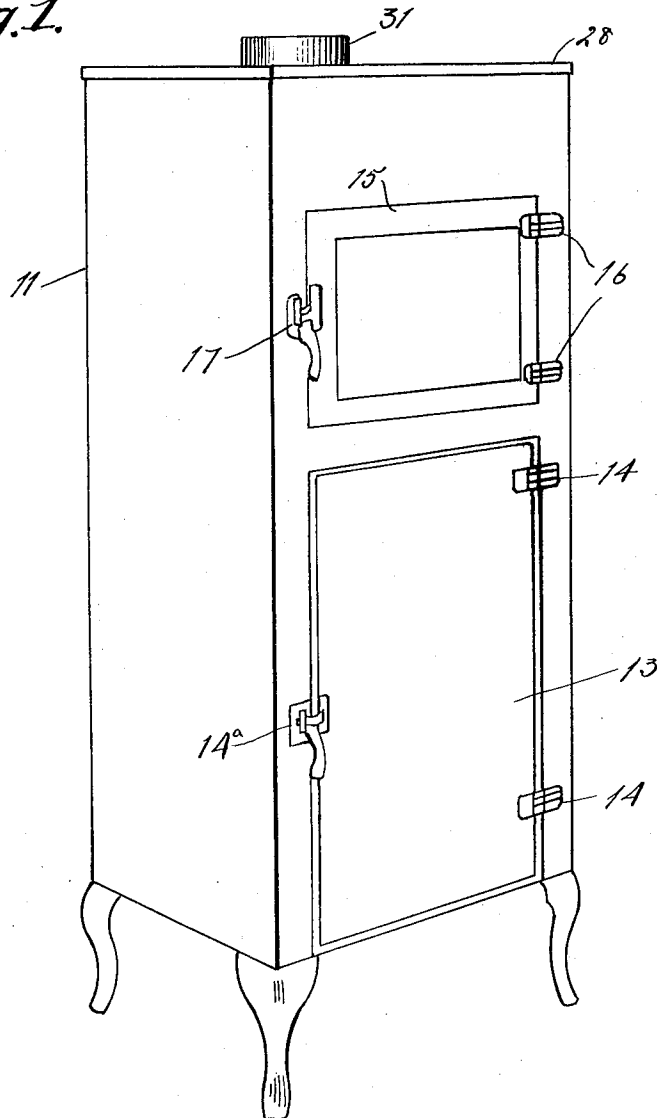
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ELECTRIC INCINERATOR

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5 Sheets-Sheet 1

Fig. 1.



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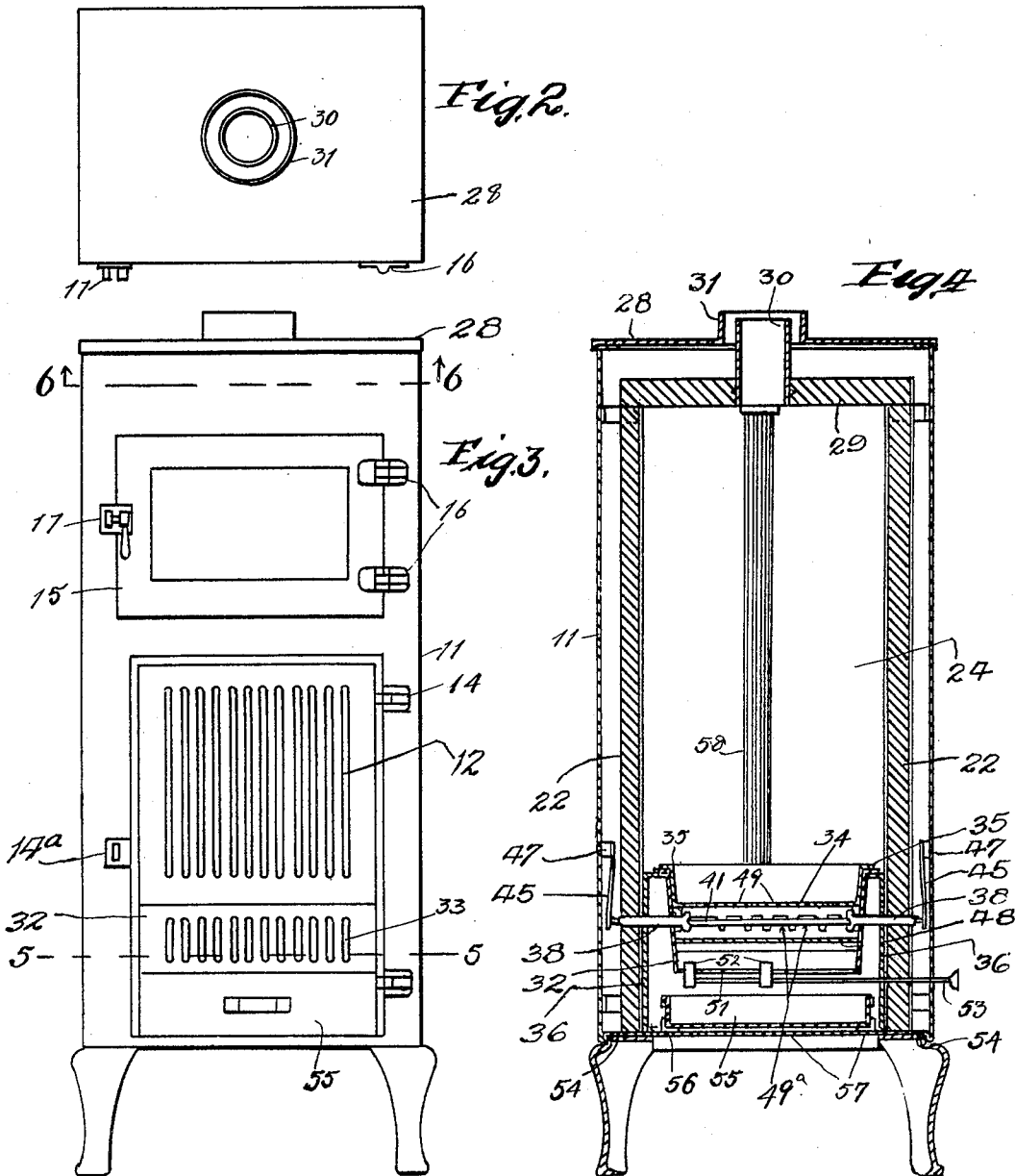
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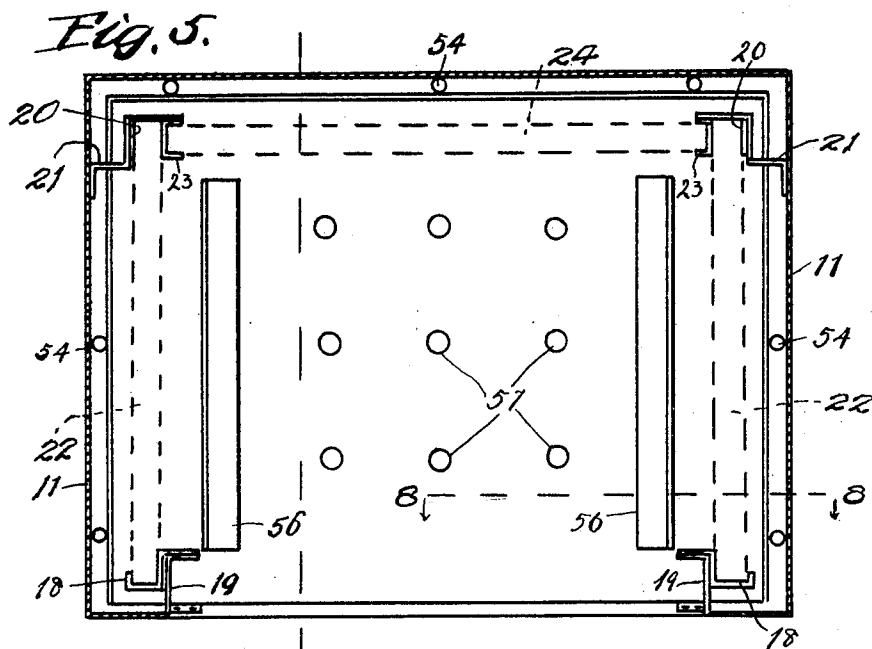
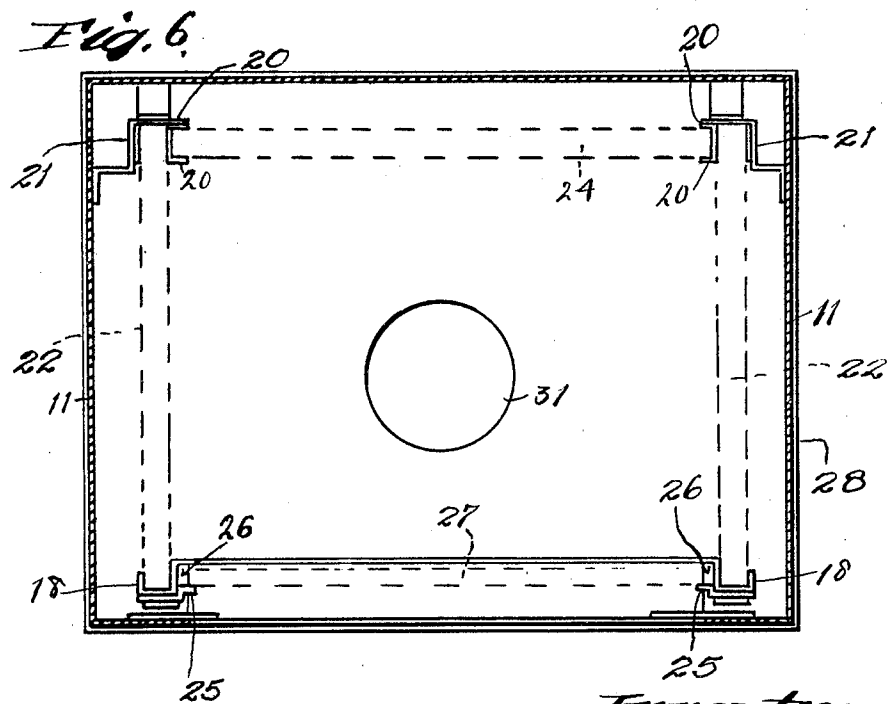
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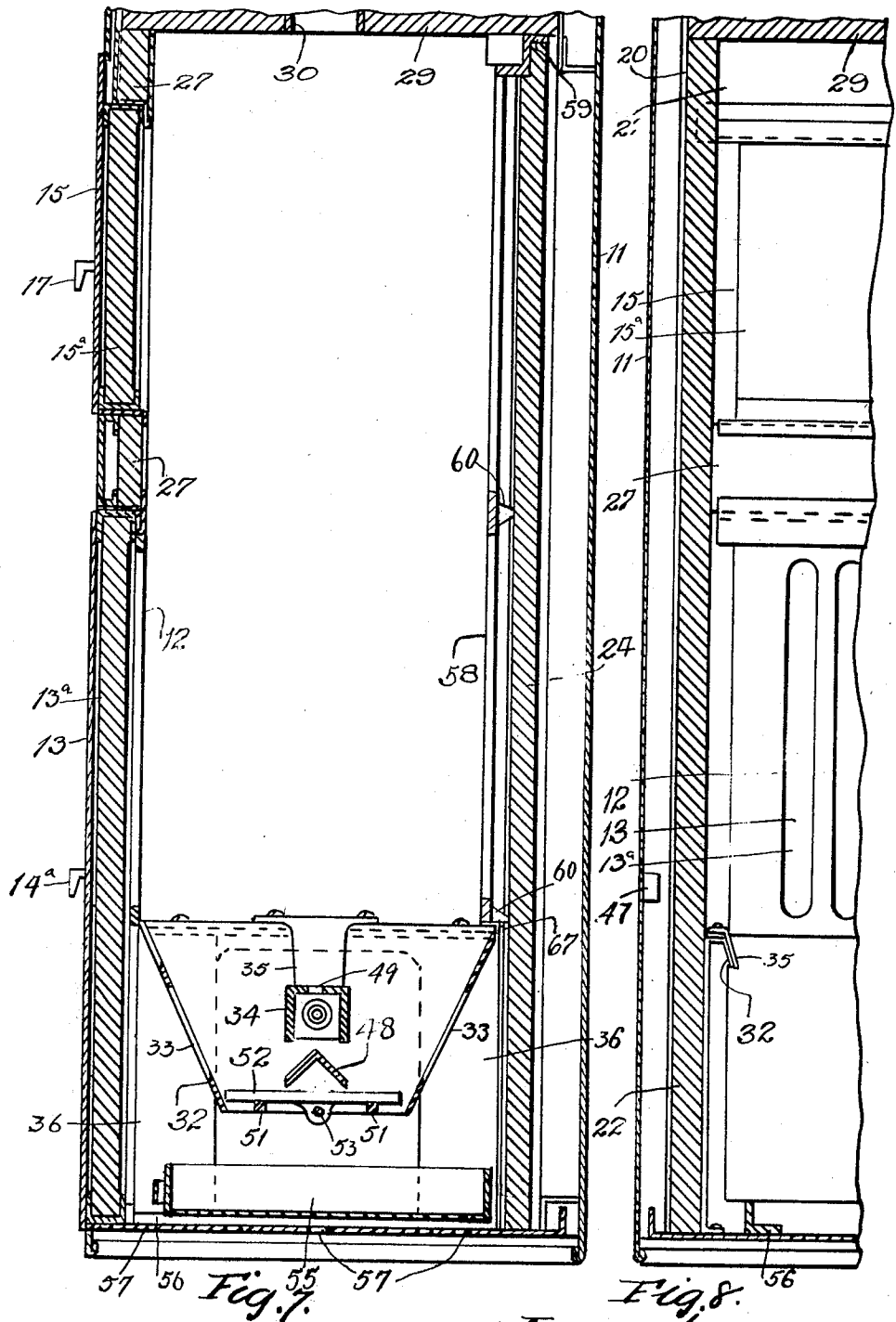
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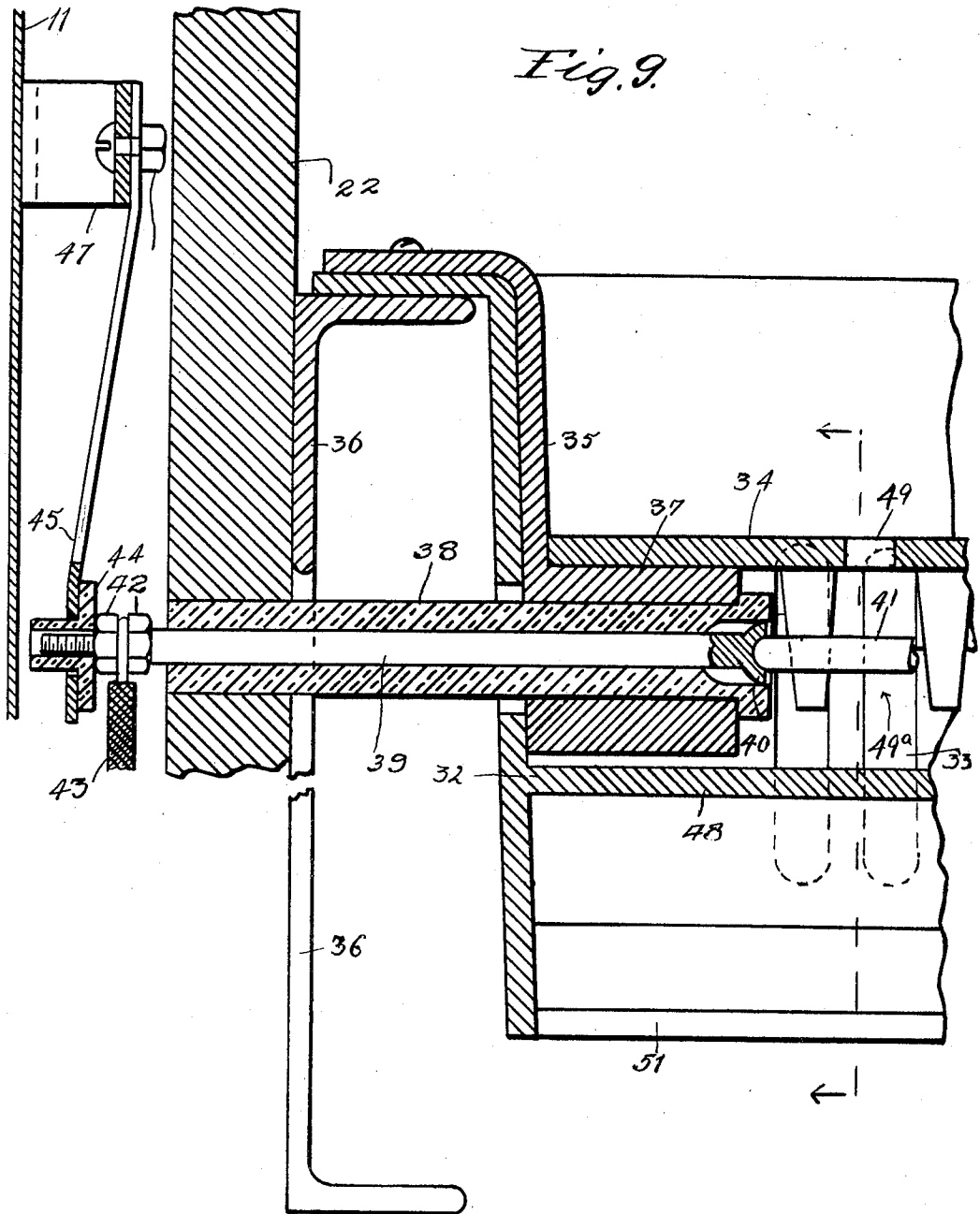
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UNITED STATES PATENT OFFICE

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ELECTRIC INCINERATOR

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Application May 12, 1932. Serial No. 610,890

7 Claims. (Cl. 219—35)

My present invention relates to a new and useful improvement in electric incinerators, being an improvement on my United States Patent application, Serial Number 533,641, filed April 29, 1931, and has for its object to simplify the design and construction and increase the efficiency of such incinerators.

With these and other ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawings forming a part of this application, in which:—

Fig. 1 is a perspective of an incinerator made in accordance with my present invention.

Fig. 2 is a plan view of the incinerator.

Fig. 3 is a front elevation, the lower door being removed.

Fig. 4 is a central vertical section.

Fig. 5 is a section on the line 5—5 of Fig. 3, on an enlarged scale and with the firing mechanism being omitted.

Fig. 6 is a section on the line 6—6 of Fig. 3, similar to Fig. 5.

Fig. 7 is an enlarged vertical central section taken at right angles to Fig. 4.

Fig. 8 is a fragmental section at right angles to Fig. 7.

Fig. 9 is an enlarged fragmentary section of a portion of the firing apparatus showing a portion of the heating element and one of the conducting rods.

In carrying out my invention as herein embodied, 11 represents the casing which is rectangular in shape and is provided with the slotted panel 12, positioned across the opening for the door 13, and is also provided with a door 15 which is secured thereto by the hinges 16, and a latch 17 is carried by the door for holding it tightly in its closed position. This door gives access to the interior of the incinerator for feeding the latter with the refuse material to be burned. The door 13 gives access to the lower portion of the incinerator in which is located the grate and firing element, and this door is secured to the casing by the hinges 14 and the latch 14a.

18 represent two channel strips supported and held in position by the brackets 19 which latter are preferably welded to the strips and secured in any convenient manner to the front wall of the casing 11, and 20 are also two channel strips

secured and held in place by the brackets 21, said brackets being secured to the side walls of the casing and these four channel strips serve to receive and hold high heat resisting panels 22, said panels being set upright in the channels of the strips as shown by the dotted lines in Fig. 5. 23 represents two channel strips which are welded to the channel strips 20 so as to form holders for high heat resisting panels as indicated by the dotted lines 24 in Figs. 5 and 6.

25 represents two strips which are secured to the channel strips 18, preferably by welding so as to form channel ways 26 for positioning and holding a high heat resisting panel 27 indicated by the dotted line in Fig. 6. The door 13 carries a high heat resisting panel 13a and the door 15 a like panel 15a; so that it will be seen that by this arrangement provision is made for forming a furnace chamber of walls of high heat resistance and this construction is highly advantageous in that it greatly facilitates the assemblage of the incinerator since the heat resisting panels are slid downward into their channels before the top 28 is placed in position and may be readily removed for repair or substitution when occasion requires.

To complete this fire resisting chamber of the incinerator, the top slab 29 of the same material as the side panels is set upon the upper edges of said panels and the channel strips in which the panels are held as clearly shown in Fig. 4. This slab has a flue 30 set therein, preferably molded therein, said flue leading from the interior of the furnace chamber and passing into the flue 31, the latter being carried by the top 28 of the casing, being intended for connection with a chimney for carrying off the fumes and producing an air circulation between the inner walls of the casing the outer walls of the furnace as hereinafter set forth.

32 represents the grate which is in the form of an inverted truncated cone having the slots 33 therein for the admission of air and within this grate is set what I term the firing box 34, supported by the hangers 35, the flanges of which latter rest upon the flanges of the grate and these flanges of the grate in turn rest upon the brackets 36.

Each of the hangers 35 has a hub 37, said hubs having holes therethrough for the passage of the insulators 38, said insulators being of porcelain or lava and through these insulators pass the conductor rods 39. These rods have their inner ends cupped as indicated at 40 for the reception of the firing element 41.

Each of the conductor rods has connected thereto by the nut 42 a feed wire 43 and over the end of each of the conductor rods is set an insulating cap 44 against which the spring 45 bears, the upper end of said spring being secured by the bolt 46 to the support 47, carried by the casing. By this arrangement, it will be seen that the firing element 41 will be held in suspension by the inward pressure of the conductor rods against the ends of said element from the tension of the springs 45, thus providing for the compensation for the considerable expansion and contraction which takes place in the firing element.

48 is a shield of angular shape positioned under the firing element 41 to protect said element from the building up of dust and ashes falling thereon from the furnace. The firing box is provided with the openings 49, its sides being slotted as indicated at 49a for the free passage of the heat emanating from the firing element to the material within the furnace to be burned. The bottom of the grate which consists of the longitudinal bars 51 has slidably mounted thereon the shaker bar 52 with which is connected the operating rod 53, which latter extends through one of the side walls of the incinerator so as to be manually operated for shaking the ashes and other accumulated material from the grate.

The air space between the furnace and the outer casing of the incinerator communicates with the atmosphere through the openings 54 so that when the apparatus is coupled with a chimney the draft in said chimney will create a considerable suction within this space thereby drawing in air at the bottom thereof; causing said air to circulate around the furnace and finally expel the air into the chimney. This will keep the outer casing at a comparatively low temperature at all times, preventing the overheating of the room in which it may be placed.

55 represents an ash pan adapted to slide beneath the grate on the slide-way 56 so that any ashes shaken from said grate will be caught by said pan, and when the accumulation of said ashes has warranted, the pan may be readily withdrawn, emptied and replaced.

In order that sufficient air for maintaining combustion within the furnace may be admitted thereto the holes 57 are formed in the bottom of the casing and as a precaution against the material to be burned clogging within the furnace or becoming so compact therein as to prevent proper combustion, I provide what I term a breather 58 which is suspended by the lug 59 from the upper edge of the back wall of the furnace and is spaced from said back wall by the lugs 60 and this breather consists of a strip of high gravity metal having vertical slots therein so that air passing around the grate and through the space 61 will pass upward behind the breather and be fed to the material, thus facilitating combustion.

From the foregoing description the operation of my improved incinerator will be obviously as follows:— The refuse material being introduced into the furnace chamber through the door 15 and the current turned on the firing element through said current will pass and will be brought to a sufficient temperature within the enclosed firing box for firing this refuse material through the openings 49 assisted by the upward flow of air which tends to force the heat generated within said box through these openings.

When the contents of the furnace chamber has thus been initially fired, it will continue to burn

due to the draft passing upward through the grate, and the smoke and fumes from this combustion will pass through the pipe 30 to the chimney thus carrying off all odors. This makes it possible to use this improved incinerator in a kitchen or other portion of the home without any interference.

Of course I do not wish to be limited to the exact details of construction as herein shown, as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is:—

1. An incinerator comprising an inner structure, said structure consisting of panels of fire resisting material and a slab forming the top of said inner structure, an outer structure completely surrounding and housing-in said inner structure so as to form an air space between said structures, channel strips supported by the outer structure in which said panels are removably set, a flue leading from the interior of the outer structure, and a second flue set in said slab and projecting upward into the first named flue, the second named flue being of less diameter than the first named flue.

2. In an incinerator, an outer casing, channel strips supported by the inner walls of said casing, fire resisting panels removably set within the channels of said strips, a slab of fire resisting material seated upon the upper edges of the panels, a flue set in the slab, and a flue leading from the top of the casing of greater diameter than the first named flue into which the first named flue projects.

3. In an incinerator, a furnace, the side walls thereof consisting of panels of high heat resisting material, an outer casing surrounding the furnace, a series of channel strips supported by the outer casing which in turn support said panels, a flue leading from above the top of the casing to a slab of fire resisting material set upon the upper edges of the panels, a second flue set in said slab and projecting upward into the first named flue for carrying off the products of combustion from the furnace, a firing box supported within the furnace, a firing element positioned within said box, and resilient means for holding said firing element in position.

4. An incinerator, comprising a rectangular casing in which is located a furnace so positioned as to form an air space between the outer walls of said furnace and the inner walls of said casing, channel strips supported by the casing for supporting the walls of the furnace, a firing box located within the furnace, a firing element, two conducting rods, the inner end of each of which is cupped for receiving the ends of the firing element, plate springs adapted to force the conducting rods inward whereby the firing element will be firmly held in place and conductor wires leading to said conductor rods.

5. In an electric incinerator, a grate, brackets for supporting said grate, a firing box supported within the grate, insulating tubes set in said box, conductor rods extending through the center of said tubes, nuts threaded upon the ends of the rods for binding conductor wires to the rods, insulating caps set over the ends of the rods, plate springs adapted to bear inwardly against said caps, and a firing element, the ends of which are seated in cups formed in the ends of the rods.

6. In an electric incinerator, a firing box, a

grate in which said box is supported, insulating tubes set in said box, conductor rods extending through the center of said tubes, nuts threaded upon the ends of the rods for binding conductor wires to the rods, insulating caps set over the ends of the rods, plate springs adapted to bear inwardly against said caps, a firing element, the ends of which are seated in caps formed in the ends of the rods, and a shield positioned beneath said element.

7. In an incinerator of the character described, a grate in the form of an inverted truncated cone and a firing box suspended within said grate, insulating tubes leading from the firing box, conductor rods housed within said tubes, the inner ends of said rods being concaved, a heating element, the ends of which are seated in concaves, and means for holding the rods against the heating element under spring pressure.

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